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ABSTRACT

The process of constructing a test to assess geographic knowledge and understandings of fifth and sixth grade pupils is discussed. In addition, a draft of a test to measure geography skills and knowledge of physical and human geography is presented. The document is presented in three sections. In section I, information is presented on test objectives (to provide valid and reliable assessment), areas tested (skills, physical geography, and human geography), and domains of knowledge sampled by test items (analysis, application, and comprehension). Information is also presented on feedback from field evaluation of the test, test strengths and weaknesses, and format and terminology. Section II outlines objectives measured in the National Council for Geographic Education (NCGE) test and presents tabular data on test items, objectives, and scoring. Section III, the draft of the NCGE Intermediate Level Geography Test, consists of 29 questions on geography skills, 28 questions on physical geography, and 26 questions on human geography. Students are directed to answer questions involving map skills, locational skills, chart and graph reading, and analysis of illustrations and statements. (DB)

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Geographic Literacy Among Intermediate Level Students in the United States: Fact or Fiction

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SO 012 386

A Report on the Development of
the Intermediate Level Geography Test
Prepared for the Annual Meeting
of the National Council for Geographic Education
Mexico City, Mexico
October & November, 1979

Introduction and Background

The NCGE Test Development committee was formed in 1977 during the Executive Board meeting in St. Louis. Since that time the committee has been actively involved in the creation of a test instrument for the assessment of geographic literacy among intermediate level students, particularly those in grades five and six. The following people have been asked to serve on the committee:

Dr. John Archbold, elementary teacher
Spring Valley, California

Dr. Peter Greco, President NCGE and
Professor of Geography
Oregon College of Education
Monmouth, Oregon

Dr. James Kracht, Professor and Chairman
Dept. of Curriculum and Instruction
Illinois State University
Normal, Illinois

Dr. Walter Pierce, Professor
Dept. of Curriculum and Instruction
Illinois State University
Normal, Illinois

Development of the NCGE Intermediate Geography Test

Over the past three years major attention has been given to the development of a test instrument that would be valid and reliable in the assessment of geographic knowledge and understandings of fifth and sixth graders. Each draft of the test has been field tested, item analyzed, and revised in an effort to improve the overall quality of the instrument. Draft 3 will be used to collect test data nationwide and will appear with manual in published form sometime in the late Spring, 1980.

Draft 3 of the test contains 85 four option multiple choice items in a single booklet with Parts I, II, and III. It measures student knowledge and understandings in three areas--skills, physical geography, and human geography.

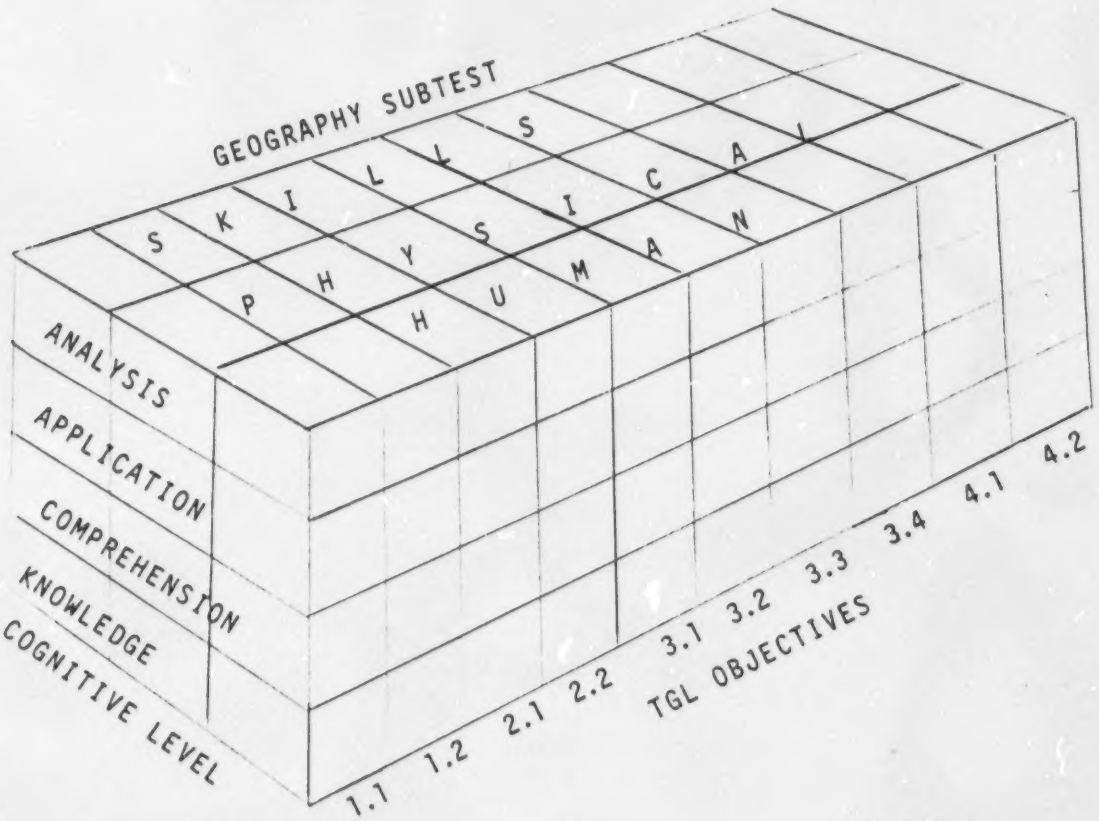

Fig. 1 -- NCGE Intermediate Test Development Matrix

A three-dimensional matrix serves as a guide for the construction of the test. (Fig. 1) It provides a framework for the development and classification of test items and insures that appropriate representation of the cognitive levels of thinking and geographic content objectives is achieved. Each cell in the matrix represents a domain

of knowledge sampled by items on the test and suggests desirable areas from which to derive additional items. In general, five or six items should appear in the matrix for each content objective to adequately assess student understanding of the objective. As with Draft 2 of the test, items in Draft 3 are designed to assess geographic content identified in the Manson and Vuicich Toward Geographic Literacy publication[1] (Table 1)

Table 2 presents the author's classification of the test items on Draft 3 by geographic subtest and objective. Although a more rigorous and detailed process is now underway to establish content validity on Draft 3, this "one man's opinion" classification scheme does indicate that a sufficient number of items do exist to adequately assess student knowledge and understanding relative to each TGL objective. True content validity will be established when the panel of judges selected to examine and classify items has completed its work. Each judge will categorize each item on Draft 3 into one of the geographic content/ cognitive level cells in the matrix. All items on which there is two-thirds agreement (4 of 6 judges agree) will be considered valid measures of the specified geographic content and cognitive level of thinking.

Table 3 presents the author's classification of the test items on Draft 3 by geographic subtest and cognitive level. While others knowledgeable of classifications schemes might disagree with some of

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[1] Gary Manson and George Vuicich, Toward Geographic Literacy: Objectives for Geographic Education in the Elementary School, Boulder: ERIC/CHESS and SSEC, 1977.

these classifications, the author found this technique useful for developing a test which measures various cognitive levels. Note that 64 items (75%) are classified at the comprehension level or above, and that only 21 (25%) of the items are strictly recall or knowledge level. Note also that the vast majority of the analysis level items are found on the Physical and Human geography subtests and that 57 items (67%) are classified as knowledge and comprehension, with comprehension containing the largest number of items. The greater emphasis on these two levels would seem to be appropriate and in keeping with the levels of learning that should be emphasized at the intermediate grade levels.

Data Collection

Some preliminary data has been collected on Draft 3 to determine the success of Draft 2 revisions. A sample of 118 students were administered Draft 3. Students sampled are from middle to upper middle class families. Since SES (socioeconomic status) for this group tends to be somewhat higher, one can expect that average scores will be somewhat higher than would be expected if a cross sample of SES groups was tested. Approximately equal numbers of students from grades 5 and 6 were included in the sample. Following orientation sessions with teachers and administrators in each of the two schools sampled, the tests were administered by the regular classroom teachers on three consecutive days during the regular social studies period.

Analysis and Discussion

An item analysis was performed on the test data to assist in determining strengths and weaknesses of the test items and to identify possible areas of student weaknesses. Tables 4 and 5 provide basic test score data obtained from the item analysis.

Perhaps a few words concerning the format, terminology, and desired ranges in an item analysis would be appropriate at this point. In an item analysis, each item of the test is identified and its correct option is shown. In the item response pattern the test group is divided into an upper, middle, and lower group constituting 27, 46, and 27 percent respectively. This division is made on the basis of individual test scores, and is essential to provide information concerning the operation of distractors, and to compute the necessary item statistics. Test experts have long known that such a division yields the maximum amount of information about the performance of test items when the goal of testing is to separate those who know from those who do not. Each test item option is shown, along with the number of students from each group choosing that option.

Item number 67 from Draft 3 of the test illustrates fairly well the desired responses of an ideal test item. (Table 6) If one assumes that the function of a test is to discriminate between those who have and those who do not have the desired knowledge, then it is desirable that approximately two-thirds of the upper group and one-third of the lower group should select the correct response. Incorrect options should be selected in roughly equal proportions if the distractors are performing properly. Based on these criteria, test item 67 is performing well and represents the type of items that should make up the vast majority of the test items on the final form of the NCGE Intermediate test. At present, 75 of the 85 items on Draft 3 of the test are effective discriminators (see Table 4).

The mean test score of 45.9 is quite low and indicates, on the whole, inadequate understanding of the content embodied in the test. Only 18 students, or 15%, scored 70% or better on the test, leaving

100, or 85%, scoring below 70%. Twenty-one students, or 18%, scored below 30% correct, which is just slightly above chance on a four option multiple choice test. Test scores are clustered rather closely about the mean, with 97% of the scores within two standard deviations and 66% within one standard deviation.

The Index of Difficulty and the Index of Discrimination are item statistics of primary importance in test development. (Tables 4 and 5) Difficulty is simply the proportion of the students scoring an item correctly. For tests designed for assessing levels of knowledge and understanding, a difficulty range from .20 to .80 is acceptable. Note in Table 4 that only 16 items are outside this range. However, the most valid and reliable scores can be obtained when the majority of the items approximate medium difficulty. For 4 option multiple choice items, the ideal index of difficulty would be .62 if we allow for chance success in the marking. If we consider items on Draft 3 in the range .45 to .79 to be "in" the medium category, then 46 items, or 54% are of medium difficulty. Another 21 items have difficulty indices between .30 and .44. Given greater student understanding of the content, it would seem that many of these difficult items would have difficulty indices closer to the medium range. Even so, many items fall within the medium difficulty range; a goal which is highly desirable for the kind of test instrument we are developing.

Specific examples of items where students evidence lack of adequate understanding can be found in items 41, 43, and 55. In these items it is clear that students lack adequate understandings of climate patterns in the US, do not comprehend sufficiently when asked to view the globe from a different perspective, and cannot make correct inter-

pretations of stream patterns to determine direction of flow. Additional student weaknesses are revealed in relation to graph interpretation, knowledge of the character of places, knowledge of certain terminology and principles of physical geography, and in relation to certain urban and economic phenomena.

If we consider average indices of difficulty by cognitive levels, by TGL objectives, and by geographic subtests, we note in Table 4 that students experienced greatest difficulty with analysis level items in Physical and Human geography and that understandings measured by objectives 1.2, 2.1, 2.2, 3.2, 3.3, 4.1, and 4.2 are not well developed.

Basic to the evaluation of a test item is the degree to which it discriminates between high and low achieving students. The Index of Discrimination, given in tables 4 and 5, provides this information and is perhaps the most useful statistic for improving test item quality. It is readily obtained from an item analysis by subtracting the percentage of the lower group responding correctly from the percentage of the upper group responding correctly. Test constructors want to write items with high indices of discrimination, since this indicates that those who know score an item correctly, and those who do not know score it incorrectly. Testing experts generally agree that items with an index of .40 and above are excellent items; those between .30 and .39 very good; and those between .20 and .29 are good. Items below .20 do very little to discriminate between high and low achieving students. Good items should only be retained on a test when the content measured clearly indicates their importance. Examination of the data for Draft 3 shows clearly that significant improvements have been made in the discriminating efficiency of the test items. Only 10 items

failed to discriminate sufficiently and this author feels that retention of these items is justified by their content. Indeed, few geographers would argue that the content in the 10 items which failed to discriminate properly is unimportant. Seventy-five of the 85 items, or 88%, evidence good discriminating efficiency and verify the high overall quality of the test.

Both reliability and validity are measures of the quality of a test and, obviously, test constructors want to achieve high levels of each. A reliable test is one that measures consistently whatever it is that it measures. A valid test is one that measures accurately whatever it is that it should measure.

Reliability is not difficult to discern, primarily because it can easily be quantified. It can be achieved in a number of ways in testing, including the use of a quantitative formula such as the Kuder-Richardson Reliability Formula, which was used to determine reliability on Drafts 1, 2 and 3 of our test. Experts in test construction can achieve reliability coefficients that exceed .90 where 1.00 represents perfect reliability. However, most classroom tests have reliability coefficients in the .50 range. Draft 1 of our test had a reliability coefficient in the .68 range, which clearly indicated that improvements were needed. As shown in Table 4, the KR #20 reliability coefficient for Draft 3 is a very acceptable .87.

Validity on a test becomes somewhat more difficult to achieve since it usually requires the use of a greater degree of subjective judgment. Content validity, which is concerned with the adequacy of sampling of a specified universe of content such as the TGL objectives, is being established for our test, as was pointed out earlier.

Problems and Needs in Completing the Test

1. Securing an acceptable sample of students.
2. Identifying additional individuals in various areas of the U.S. to supervise administration of the test.
3. Identifying additional individuals to participate in establishing content validity.
4. Collecting additional test data (so far midwestern schools have consented and data collection is underway).
5. Completion of the test manual.
6. Publication of the test.
7. Dissemination of the results.

Table 1 -- NCGE Intermediate Level Test:

Objectives Measured*

Draft 3, October, 1979

1. 1.1 Children Should Learn the Location of Places.

2. 1.2 Children Should Learn the Characteristics of Places.

3. 2.1 Children Should Learn the Meanings and Relationships of Population, Environment, Organization, and Technology.

4. 2.2 Children Should Learn the Meanings and Relationships of Spatial Distribution, Spatial Association, Spatial Interaction, and Spatial Process.

5. 3.1 Children Should Learn to Use Locational Systems.

6. 3.2 Children Should Learn to Use Direction Systems.

7. 3.3 Children Should Learn How to Use Scale Systems.

8. 3.4 Children Should Learn How to Use Symbolic Systems.

9. 4.1 Children Should Learn to Investigate Places.

10. 4.2 Children Should Learn to Analyze the Problems of Places.

*Gary Manson and George Vuicich, Toward geographic literacy: Objectives for geographic education in the elementary school. Boulder, CO: Social Science Education Consortium, Inc., and ERIC Clearinghouse for Social Studies/Social Science Education, 1977.

Table 2 -- Classification of Test Items by Geographic Subtest and Objective for Draft 3 - NCGE Intermediate Level Geography Test

Objective	Part I - Skills	Part II - Physical	Part III - Human
1.1		30, 31, 37, 38, 42, 43, 44, 45	83, 84, 85
1.2		32, 33, 34, 35, 36, 39, 40, 46, 47, 48, 50	76, 77, 78, 79
2.1		52, 53	59, 60, 61, 62, 66, 69, 70, 72, 73, 80, 81, 82
2.2		49, 51, 54, 55, 56, 57, 58	67, 71, 74, 75
3.1	15, 16, 19, 29		
3.2	1, 3, 4, 7, 13, 18		
3.3	2, 5, 9, 10, 14, 17		
3.4	6, 8, 11, 12, 21		63
4.1	20, 22, 23, 24, 25 26, 27, 28		
4.2		41	64, 65, 68

Table 3 -- Classification of Test Items by Geographic Subtest and Cognitive Level for Draft 3 - NCGE Intermediate Level Geography Test

Cognitive Level	% Test Items	Part I - Skills	Part II - Physical	Part III - Human
Knowledge	25	21	30, 31, 32, 33, 34, 35 36, 37, 38, 39, 42, 45	77, 78, 80, 81, 82, 83, 84, 85
Comprehen.	42	1,3,4,5,6,7,8,10,11 12, 13, 15, 16, 18, 19, 20, 22, 23, 24,25	43, 44, 46, 47, 48, 49, 50	59, 60, 61, 62, 63, 67, 71, 76, 79
Application	8	2,9,14, 17, 26, 27, 29		
Analysis	25	28	40, 41, 51, 52, 53, 54, 55, 56, 57, 58	64, 65, 66, 68, 69, 70, 72, 73, 74, 75

Table 4-NCGE Intermediate Level Geography Test Score

Data-Draft 3 October, 1979

No. of Students	No. of Items	Mean Test Score	Standard Deviation	% Students 1 SD from M	% Students 2 SD from M	Range of Scores	No. of Items Too Difficult	No. of Items Too Easy	Reliability Coefficient
118	85	45.9	11.29	66	97	19-73	7	9	KR 20=.87

Discrimination Indices			
Excellent Items	Very Good Items	Good Items	Marginal Items
28	24	23	10

Average Difficulty by Cognitive Levels			
Knowledge	Comprehension	Application	Analysis
.54	.62	.43	.42

Average Difficulty by TGL Objective									
1.1	1.2	2.1	2.2	3.1	3.2	3.3	3.4	4.1	4.2
.62	.48	.54	.40	.75	.55	.57	.71	.50	.47

Average Difficulty by Cognitive Subtest		
Part I-Skills	Part II-Physical	Part III-Human
.60	.50	.53

Table 5--NCGE Intermediate Level Geography Test Score Data-Draft 3-October '79

Item No.	Key	%Stud. Correct	Discrim. Index	Item No.	Key	%Stud. Correct	Discrim. Index	Item No.	Key	%Stud. Correct	Discrim. Index
1	4	69	.38	30	4	49	.31	58	4	32	.13
2	2	54	.38	31	2	64	.41	59	2	74	.50
3	4	42	.22	32	2	66	.50	60	4	86	.22
4	2	47	.38	33	3	52	.63	61	1	36	.31
5	3	76	.34	34	3	42	.00	62	2	90	.34
6	1	89	.22	35	4	48	.34	63	1	62	.34
7	3	65	.31	36	3	31	.31	64	4	81	.41
8	3	48	.41	37	2	79	.44	65	4	30	.13
9	3	38	.38	38	3	71	.41	66	4	66	.38
10	1	79	.34	39	1	48	.31	67	1	58	.47
11	2	78	.34	40	2	44	.19	68	4	49	.41
12	1	85	.28	41	2	29	.50	69	1	29	.03
13	3	64	.41	42	3	66	.47	70	4	53	.44
14	2	61	.34	43	3	20	.25	71	3	76	.28
15	3	63	.22	44	2	92	.13	72	1	34	.50
16	2	85	.22	45	2	72	.47	73	2	61	.28
17	4	36	.25	46	4	79	.38	74	1	29	.34
18	1	44	.44	47	2	51	.16	75	3	43	.25
19	2	86	.22	48	1	47	.47	76	4	31	.16
20	2	29	.41	49	4	44	.34	77	3	55	.38
21	1	64	.25	50	1	47	.44	78	3	46	.25
22	2	47	.22	51	4	54	.28	79	4	38	.38
23	4	86	.22	52	1	66	.56	80	4	42	.53
24	1	66	.25	53	3	45	.31	81	1	29	.44
25	1	63	.41	54	1	34	.25	82	2	50	.25
26	3	44	.44	55	4	11	.03	83	4	42	.25
27	1	41	.34	56	2	32	.28	84	4	61	.59
28	2	26	.25	57	1	28	.09	85	3	67	.41
29	2	66	.47								

Table 6--Example of a Model Test Item-Draft 3

NCGE Intermediate Level Geography Test

Item No. 67--Human Geography Subtest

ALT	UPPER	MIDDLE	LOWER	TOTAL	PERCENT
1	25	33	10	68	57.6
2	3	9	6	18	15.3
3	2	5	9	16	13.6
4	2	7	7	16	13.6

Index of Difficulty .58

Index of Discrimination .47

FEB 22 1980

NATIONAL COUNCIL FOR GEOGRAPHIC
EDUCATION

Intermediate Level Geography Test
Draft No. 3, Fall, 1979
Parts I, II, & III

Test Development Committee
Norman C. Bettis, Chairman
Illinois State University
Normal, Illinois 61761

PROPRIETARY MATERIALS

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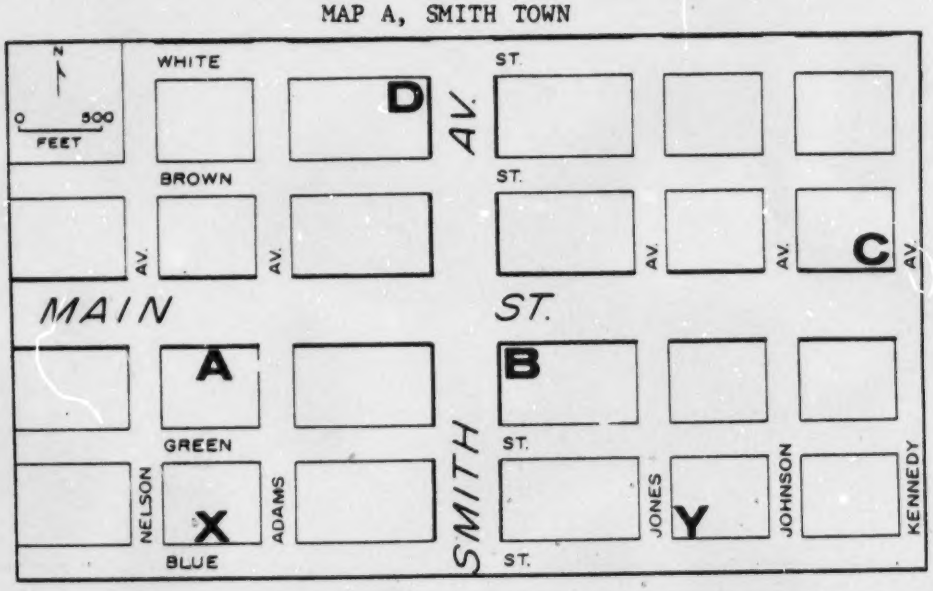
PART I

Intermediate Level Geography Test
Geography Skills

MAP A, SMITH TOWN



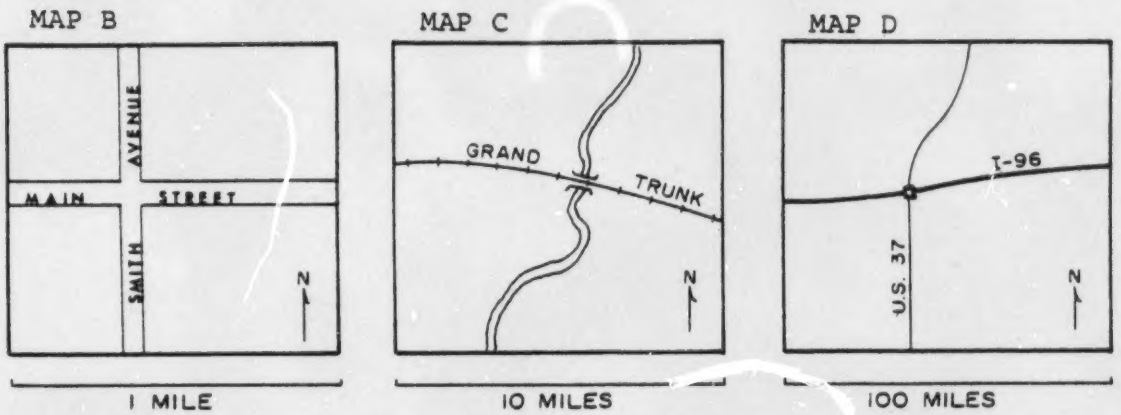
1. Here is a map of Smith Town, U.S.A. Bob lives at Point Y in Smith Town. He wishes to visit John who lives at Point X. In what direction must Bob travel to visit John?
    1. North
    2. South
    3. East
    4. West

2. Look at Map A. John lives in Smith Town at Point X. He wishes to visit his friend, Bob. Bob lives at Point Y. How far must John travel to visit Bob?
    1. About 1000 feet
    2. About 3000 feet
    3. About 5000 feet
    4. About 7000 feet

3. Bill lives in Block D. Tom's house in Block C is what direction from Bill?
    1. Southwest
    2. Northwest
    3. Northeast
    4. Southeast

4. Michele has a paper route. Every morning she walks from her home on Kennedy Avenue at Point C to Brown Street, then along Brown Street to Adams Avenue, then along Adams Avenue to White Street, along White Street to Kennedy Avenue, then along Kennedy to her home. In order, from first to last, what directions has she walked along her paper route?
    1. West, North, East, and South
    2. North, West, North, East, and South
    3. North, East, North, West, and South
    4. South, East, South, West, and North

MAPS B-D, TRANSPORTATION ROUTES



5. Here are three sketch maps. Which one shows the largest area?
   1. Map B
   2. Map C
   3. Map D
   4. All maps show the same area

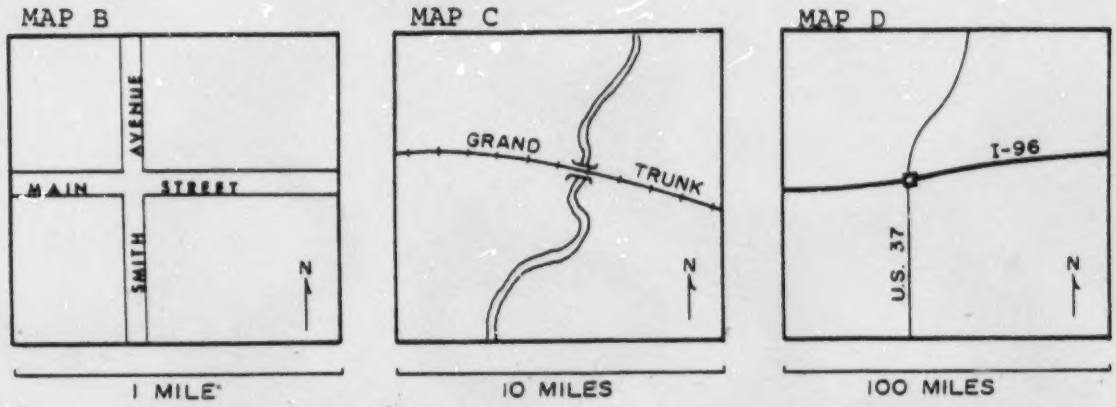
6. On Map D, I-96 and U.S. 37 are _____.
   1. Highways
   2. Pipelines
   3. Rivers
   4. Railroads

7. Look at Map B. Suppose you were riding your bike north on Smith Avenue. Then you turned right on Main Street. In what direction would you now be riding?
   1. Over
   2. Across
   3. East
   4. West

8. Which map above shows a four lane highway with no stop signs?
   1. Only Map B
   2. Only Map C
   3. Only Map D
   4. Both Maps C and D

9. Which statement about the maps above is correct?
   1. Main Street is longer than Smith Avenue.
   2. Grand Trunk is longer than I-96.
   3. I-96 is longer than Grand Trunk.
   4. Smith Avenue is longer than Grand Trunk.

MAPS B-D, TRANSPORTATION ROUTES

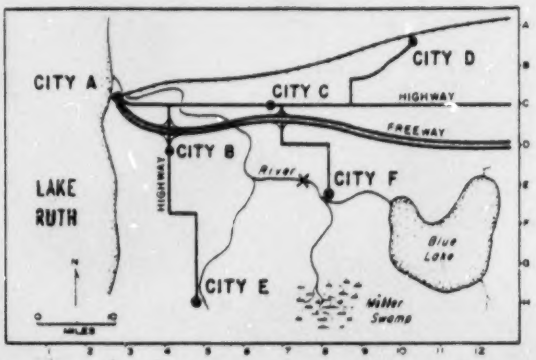


10. If Todd were to walk from West to East over the area represented by each of the sketch maps above, which one would take the least amount of time to cross?
    1. Map B
    2. Map C
    3. Map D
    4. All maps would take the same time to cross.

11. Which map above shows a type of transportation route not made by man?
    1. Only Map B
    2. Only Map C
    3. Only Map D
    4. Both Maps C and D

12. On Map C Grand Trunk crosses a _____.
    1. River
    2. Railroad
    3. Highway
    4. Pipeline

MAP E - LAKE RUTH, TOWNS AND CITIES, MIDWEST U.S.A.



13. John lives in City E. In what direction would he walk to get to Point X?
    1. Across
    2. Northwest
    3. Northeast
    4. Up

14. About how many miles is it from City D to City A by railroad?
    1. 20 miles
    2. 40 miles
    3. 50 miles
    4. 60 miles

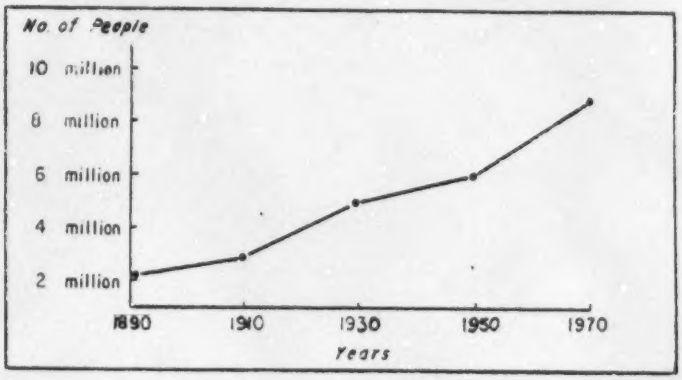
15. City F is located nearest Point _____.
    1. 7E
    2. 7F
    3. 8E
    4. 8F

16. What is located at 4D?
    1. City A
    2. City B
    3. City C
    4. City D

17. About how long would it take Jill to cross Blue Lake at its widest part from north to south in a motor boat traveling at 15 miles per hour?
    1. About 2 1/2 hours
    2. About 2 hours
    3. About 1 1/2 hours
    4. About 1 hour

18. In order from first to last, what directions will Lori travel if she drives from City D to City A?
    1. Southwest, South, and West
    2. Southeast, South, and East
    3. West, South, and West
    4. East, Southwest, and East

FIGURE 1, HOMESTATE'S POPULATION GROWTH 1890-1970



19. The figure above shows how many people lived in Homestate in 1890, 1910, 1930, 1950, and 1970. How many people lived in Homestate in 1950?
    1. About 4 million
    2. About 6 million
    3. About 8 million
    4. About 10 million

20. When did the population of Homestate grow by about 2 million people?
    1. Between 1890 and 1910
    2. Between 1910 and 1930
    3. Between 1930 and 1950
    4. Between 1930 and 1970

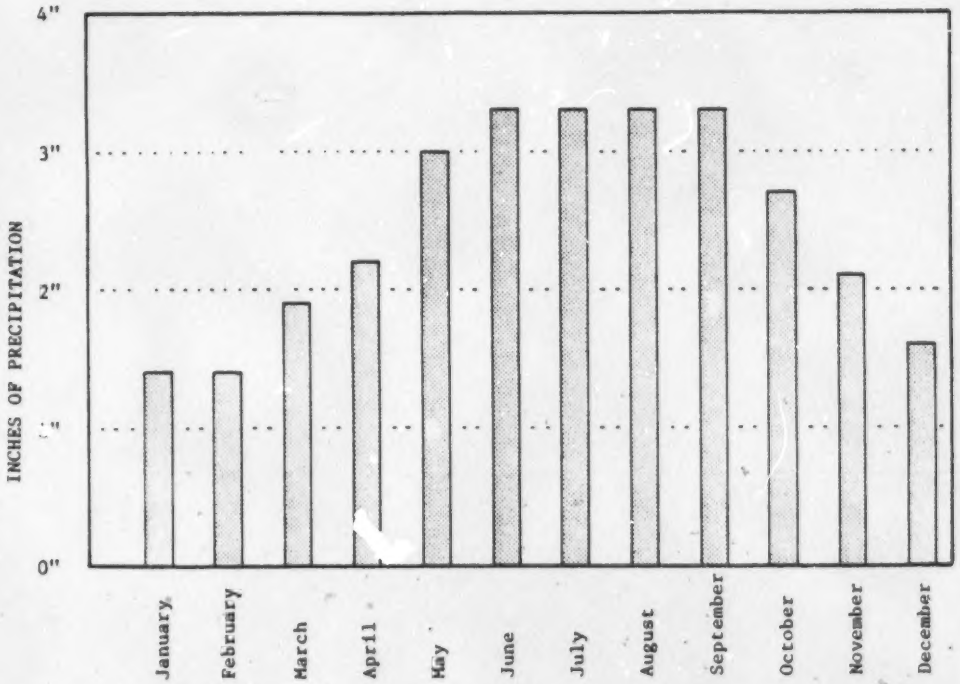
21. The figure above is called _____.
    1. A graph
    2. A drawing
    3. A diagram
    4. A table

22. What was probably true of Homestate's population in 1870?
    1. More people lived in Homestate than in 1890.
    2. Fewer people lived in Homestate than in 1890.
    3. The same number of people lived in Homestate as in 1890.
    4. No people lived in Homestate in 1870.

23. When did the population of Homestate have its biggest increase?
    1. Between 1890 and 1910
    2. Between 1910 and 1930
    3. Between 1930 and 1950
    4. Between 1950 and 1970

24. How many more people lived in Homestate in 1970 than in 1930?
    1. About 4 million
    2. About 5 million
    3. About 6 million
    4. About 7 million

FIGURE 2, PRECIPITATION IN GOODTOWN, U.S.A.



25. Which season has the most precipitation?
    1. Summer
    2. Fall
    3. Winter
    4. Spring

26. About how many inches of precipitation fall in Goodtown in one year?
    1. About 10 inches
    2. About 20 inches
    3. About 30 inches
    4. About 40 inches

27. About how many inches of precipitation fall in Goodtown in the Winter time?
    1. About 5 inches
    2. About 7 inches
    3. About 9 inches
    4. About 10 inches

28. How does the amount of precipitation received in Goodtown in Fall compare to the amount received in Spring?
    1. There are several more inches in Spring.
    2. The amounts are about equal.
    3. There are at least 5 more inches in Fall than in Spring.
    4. The Fall is very dry; the Spring very wet.

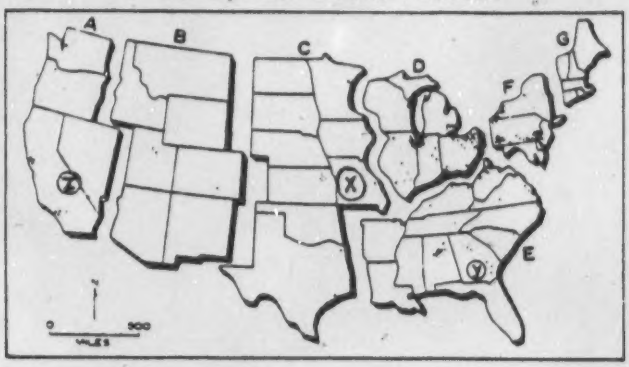
29. Which month has just a little less than 2 inches of precipitation?
    1. February
    2. March
    3. April
    4. December

STOP--DO NOT GO ON TO PART II UNTIL INSTRUCTED TO DO SO. PLEASE CLOSE YOUR BOOKLET.

PART II

Intermediate Level Geography Test
Physical Geography

MAP F, THE UNITED STATES



30. Where are the Appalachian Mountains?
    1. Region B
    2. Region C
    3. Region D
    4. Region E

31. Where are the Rocky Mountains?
    1. Region A
    2. Region B
    3. Region C
    4. Region D

32. Which of these ideas applies to the place marked with a Y?
    1. High mountains
    2. Long, hot summers
    3. Little rain
    4. Heavy snow

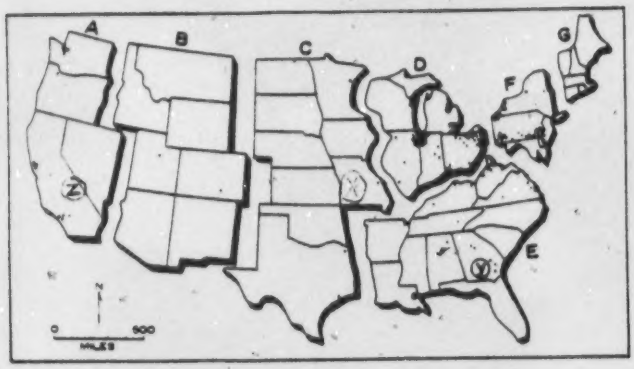
33. Choose the best description of Region G.
    1. Plains; mild, wet winters and hot, wet summers; cotton growing
    2. High mountains; cold, dry winters; cool, dry summers; gold mining
    3. Hills and mountains; cold, wet winters; cool, wet summers; lobster fishing
    4. Plains; cold, wet winters; hot, wet summers; corn farming

34. If you were to visit the place marked with a Z, you would find many _____.
    1. Plateaus
    2. Plains
    3. Mountains
    4. Low hills

35. Which region has the coldest winter along its coast?
    1. Region A
    2. Region C
    3. Region E
    4. Region G

36. Which of these states has much <u>less</u> precipitation than the state marked with an X?
    1. Mississippi
    2. South Carolina
    3. New Mexico
    4. Florida

MAP F, THE UNITED STATES



37. The Great Lakes are located closest to region _____?
    1. C
    2. D
    3. E
    4. F

38. The Mississippi River flows between <u>which</u> of the following regions?
    1. Regions A and B
    2. Regions B and C
    3. Regions C and D
    4. Regions D and E

39. Which of the regions on Map F has a mild climate all year along its western side?
    1. A
    2. D
    3. F
    4. G

40. Which statement describes a major difference between Region B and Region C?
    1. Region B is mostly plains; Region C is mostly hills
    2. Region B is mostly plateaus, mountains and valleys; Region C is mostly plains
    3. Region B is mostly hills; Region C is mostly plateaus
    4. Region B is mostly plateaus; Region C is mostly mountains

41. Where on Map F could solar energy most easily be used in place of existing energy sources during the winter?
    1. The northern part of Region C
    2. The southern part of Region B
    3. The southern part of Region D
    4. The southern part of Region F

MAP G, NORTHERN HEMISPHERE

42. Here is a map of part of the world. Where do you live?
    1. Place 1
    2. Place 2
    3. Place 3
    4. Place 4

43. Where is the North Pole?
    1. Point W
    2. Point X
    3. Point Y
    4. Point Z

44. Areas 1, 2, 3 and 4 are _____.
    1. Deserts
    2. Continents
    3. Lakes
    4. Oceans

45. The Gulf of Mexico is found at _____.
    1. Place 5
    2. Place 6
    3. Place 7
    4. Place 8

MAP G, NORTHERN HEMISPHERE

46. Which arrow is pointing at an island?
    1. Arrow E
    2. Arrow F
    3. Arrow G
    4. Arrow H

47. Which arrow is pointing at an isthmus?
    1. Arrow E
    2. Arrow F
    3. Arrow G
    4. Arrow H

48. Which arrow is pointing at a peninsula?
    1. Arrow E
    2. Arrow F
    3. Arrow H
    4. Arrow I

49. Where would we find the coldest winter time temperatures?
    1. Place E
    2. Place G
    3. Place H
    4. Place I

50. Which place on Map J is a bay?
    1. Place I
    2. Place W
    3. Place Y
    4. Place Z

FIGURE 3, PLACES IN NORTH AMERICA

Picture 1 - Forest

Picture 2 - Wheat and Grassland

Picture 3 - Farmland

Picture 4 - House Construction Site

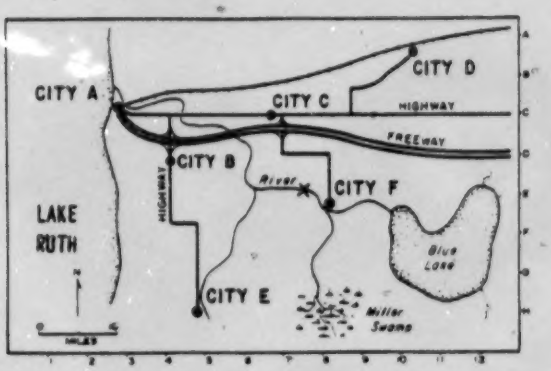
51. If it rained very hard, which place would have the least protection from the rain?
    1. Picture 1
    2. Picture 2
    3. Picture 3
    4. Picture 4

52. Which place has been changed the least by man?
    1. Picture 1
    2. Picture 2
    3. Picture 3
    4. Picture 4

53. Why has the farmer in Picture 3 planted the corn and wheat around the hill in strips?
    1. To stop the wind from blowing the soil away.
    2. To allow the corn and wheat to receive more sunlight.
    3. To prevent the soil on the hill from washing away during rains.
    4. To allow the wheat to receive more moisture.

54. Why are there no trees growing on the land in Picture 2?
    1. The amount of precipitation received each year is too low.
    2. The amount of precipitation received each year is too high.
    3. The temperature throughout the year is too cool.
    4. The temperature throughout the year is too hot.

MAP E--LAKE RUTH, TOWNS AND CITIES, MIDWEST, U.S.A.



55. John throws a stick into the river at Point X. It floats along with the river current. Which way will the stick float?
    1. Toward Blue Lake
    2. Toward City E
    3. Toward Miller Swamp
    4. Toward City A

56. In early October the surface temperature of the water in Lake Ruth is warmer than the soil in fields around City E. Why?
    1. The soil receives less sunlight than the water.
    2. The water holds its summertime heat longer than the soil.
    3. The soil reflects most of the sunlight.
    4. Sunlight can warm water but not soil.

57. Which city probably will have the <u>coolest</u> temperatures in late April?
    1. City A
    2. City C
    3. City D
    4. City F

58. Which place probably has the <u>lowest</u> elevation?
    1. Blue Lake
    2. City F
    3. Point X
    4. Lake Ruth

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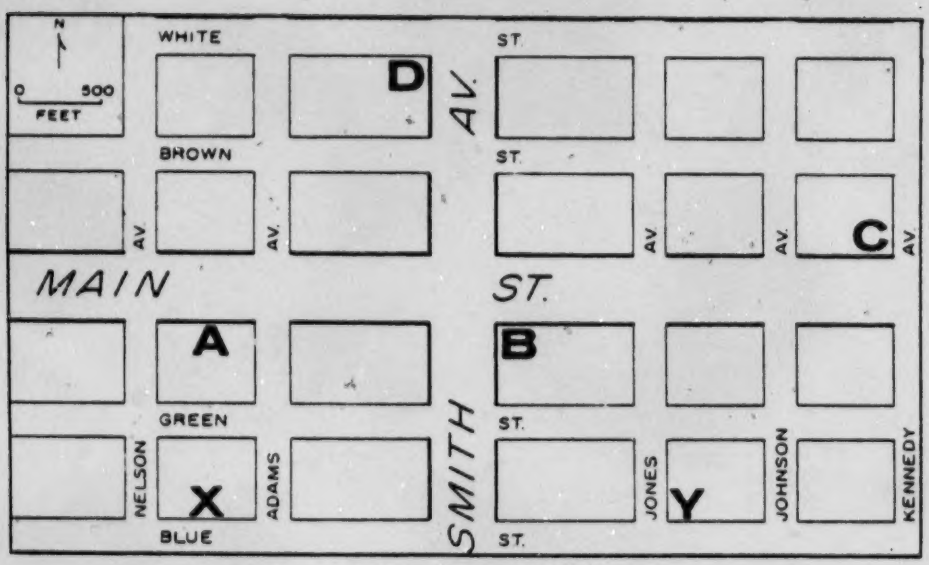
PART III

Intermediate Level Geography Test
Human Geography

MAP A, SMITH TOWN



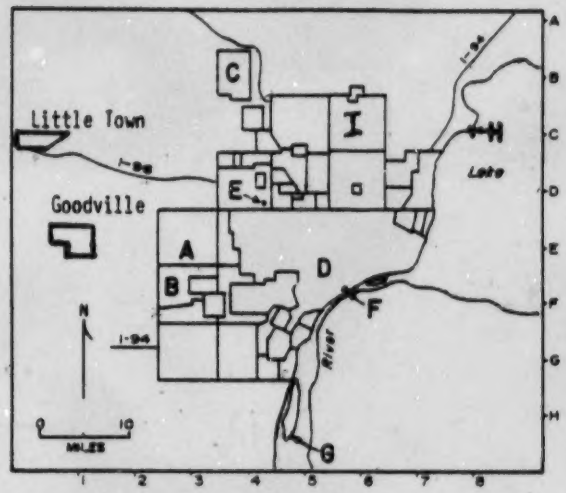
59. Look at Map A. Mr. Brown wants to build a gas station. He wants to build it where many cars would drive by. Where should Mr. Brown build his gas station?
    1. Point A
    2. Point B
    3. Point C
    4. Point D

60. The Smith Town town council has decided to install crosswalk lights to make street crossings safer. The lights probably should be installed at the intersection of _____.
    1. Johnson Av. and Green St.
    2. Smith Av. and Brown St.
    3. Johnson Av. and Brown St.
    4. Smith Av. and Main St.

61. Smith Town has a population of 25,000 people. Joe lives with his parents at the edge of town on Brown Street. Which statement below probably best describes where Joe lives?
    1. A new, small, three bedroom ranch house with a lawn and two car garage.
    2. A two bedroom apartment on the second floor of a building with a first floor furniture store with no lawn and no garage.
    3. A large, old, two-story house with four bedrooms, no garage, a small lawn with trees and shrubs, and other large houses nearby.
    4. A three bedroom condominium with 50 other families, a central playground and a covered parking area.

62. Which Avenue on Map A probably has the most lanes of traffic on it?
    1. Adams
    2. Smith
    3. Jones
    4. Johnson

MAP H, METROPOLITAN AREA



63. Areas A, B, and I are called _____.
    1. Suburbs
    2. Counties
    3. States
    4. Nations

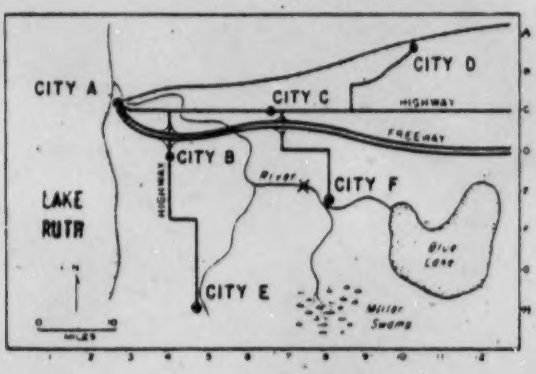
64. Look at Map H. Where is pollution likely to be greatest?
    1. Area A
    2. Area B
    3. Area C
    4. Area D

65. Where on Map H might large numbers of people experience problems because of crowded, inadequate housing?
    1. Area A
    2. Area B
    3. Area C
    4. Area D

66. Every day hundreds of people travel from Little Town to Area D. Why?
    1. They are visiting their friends and relatives in Area D.
    2. They like to get away from Little Town.
    3. They don't have any stores in Little Town.
    4. They are going to their jobs in Area D.

67. What is probably happening to the land between Goodville and Area A?
    1. It was farm land. Now people are building homes on it.
    2. People had homes on it. Now farmers are growing food on it.
    3. There were many factories there. Now they are gone and many parks are being built there.
    4. There were parks on it. Now factories are being built there.

MAP E, LAKE RUTH, TOWNS AND CITIES



68. Which city probably has the least amount of air, water, and noise pollution?
    1. City A
    2. City B
    3. City C
    4. City E

69. Which city on Map E probably would have the greatest need for an airport?
    1. City A
    2. City B
    3. City D
    4. City E

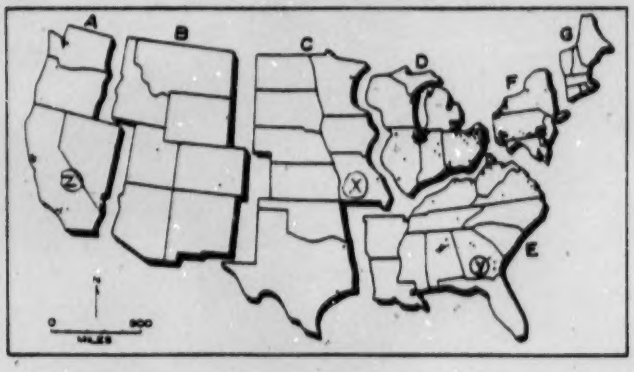
70. Which city on Map E probably would not have a Holiday Inn?
    1. City A
    2. City B
    3. City C
    4. City E

71. Mr. Jones raises melons on his farm near City F and sells them to people in City A. What form of transportation would Mr. Jones most likely use to take his melons to market?
    1. Tractor and wagon
    2. Train
    3. Truck
    4. Airplane

72. Lynn lives in a suburb near one of the cities on Map E. Lynn probably lives near city _____.
    1. A
    2. D
    3. E
    4. F

73. On which of the features on Map E has man probably had the least amount of influence?
    1. The railroad
    2. Miller Swamp
    3. The freeway
    4. City A

MAP F, THE UNITED STATES



74. Each dot on Map F shows a kind of activity. What kind of activity do you think it is?
    1. Tool manufacturing
    2. Cattle ranching
    3. Snow skiing
    4. Pumping oil wells

75. In which of the following Regions from Map F would you find the least amount of citrus fruit growing?
    1. Region A
    2. Region C
    3. Region D
    4. Region E

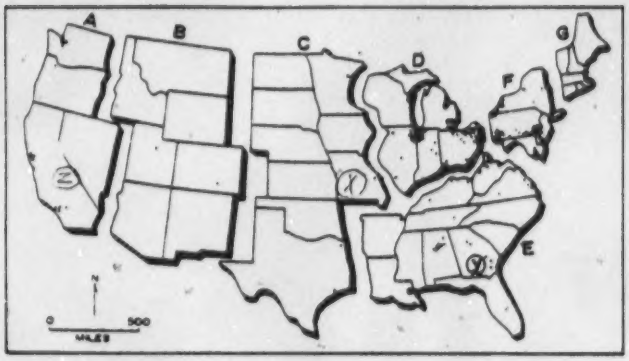
76. Which of the following is the best description of agriculture in the western part of Region C?
    1. Large quantities of fruits, nuts, and vegetables are raised for sale in other Regions.
    2. Corn, soybeans, hogs, and cattle, and farmsteads with many buildings.
    3. Cotton, corn, melons, soybeans, beef cattle and chickens are widespread.
    4. Irrigated crops, ranching, wheat farming, and large farms.

77. Which Region on Map F is famous for dairy farming?
    1. Region B
    2. Region C
    3. Region D
    4. Region E

78. Which Region has cities built up side-by-side along most of its eastern edge?
    1. Region D
    2. Region E
    3. Region F
    4. Region G

79. Where do the greatest number of people live in the United States?
    1. Regions A and B
    2. Regions B and C
    3. Regions C and D
    4. Regions D and E

MAP F, THE UNITED STATES



80. What Regions on Map F have the largest numbers of large cities?
    1. Regions A and B
    2. Regions B and C
    3. Regions C and D
    4. Regions D and F

81. Which Region has the smallest number of people living in it?
    1. Region B
    2. Region C
    3. Region D
    4. Region F

82. Many older people, after retiring from their jobs, move away from the place where they have lived for many years. Large numbers of these people move from _____.
    1. Region F to Region D
    2. Region D to Region E
    3. Region F to Region G
    4. Region C to Region D

83. Which of the following groups of cities is located in Region F?
    1. Chicago, Milwaukee, Detroit, Indianapolis
    2. Boston, Bangor, Concord, Hartford
    3. Little Rock, Lexington, Memphis, Jacksonville
    4. Pittsburgh, Syracuse, Newark, Baltimore

84. New Orleans and Atlanta are located in Region _____.
    1. B
    2. C
    3. D
    4. E

85. Which of the following groups of cities is located in Region A?
    1. Kansas City, Dallas, Omaha, Minneapolis
    2. Denver, Boise, Salt Lake City, Phoenix
    3. Seattle, Reno, San Francisco, Portland
    4. Charleston, Nashville, Richmond, Jackson